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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,327	11/21/2003	Kenneth F. Fennewald	7377-000005/US	2615
28997	7590	07/03/2006		
HARNESS, DICKEY, & PIERCE, P.L.C. 7700 BONHOMME, STE 400 ST. LOUIS, MO 63105				
			EXAMINER FASTOVSKY, LEONID M	
			ART UNIT 3742	PAPER NUMBER

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/719,327	Applicant(s) FENNEWALD ET AL.	
	Examiner Leonid M. Fastovsky	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-13 and 15-25 is/are pending in the application.
- 4a) Of the above claim(s) 12, 15-18 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11, 13, 19-23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Petition, filed 5/24/06, with respect to the final rejection have been fully considered and are persuasive. The Final rejection of 2/24/06 has been withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-8, 11, 19-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braeutigam et al in view of Lin et al and evidenced by Takahashi (JP04206602).

Braeutigam discloses a method of regulation of a system including a heater element 8 also used as a temperature sensor, the resistance of which is varies as a function of temperature of the heating element, by sensing the resistance, the temperature of the heater 12 can be determined and controlled by a two wire circuit controller-comparator 2 and a generator 3 (Abstract and Fig. 2). However, he does not disclose a substrate and a dielectric layer.

Lin discloses a heater comprising a substrate 102, a DC power source 50 (col. 9, lines 31-40)), at least one dielectric layer 106 and at least one thick film resistive layer 106

having sufficient temperature coefficient of resistance characteristics (TCR) because it is made from Ag/Pd, the same material of the heater as is evidenced by Takahashi (Abstract), thus the resistive layer is a heater element and a temperature sensor at the same time.

It would have been obvious to one having ordinary skill in the art to modify Braeutigam's invention to include a dielectric layer on the substrate as taught by Lee in order to protect the heater from an electric shock.

As for claims 7, it would have been obvious to one having ordinary skill in the art to modify Braeutigam's invention to use a DC control as an alternative source if the AC source is not available.

As for claim 19, Braeutigam in view of Lee can use the method of operating the heater because they disclose all structural elements of the invention and are capable of so perform.

As for claims 20-23, it would have been obvious to one having ordinary skill in the art to modify the invention of Braeutigam in view of Lee to include calibration steps as conventional steps in order to better control the heater temperature.

4. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braeutigam in view of Lee and further in view of Lumsden.

Braeutigam in view of Lee discloses substantially the claimed invention, but does not disclose a controller having an angle firing and a shunt resistor. Lumsden teaches a controller 8 comprises an angle firing (col. 7, lines 1-10) and shunt resistor (col. 10, lines 6-17). It would have been obvious to one having ordinary skill in the art to modify the

invention of Braeutigam in view of Lee to include a controller comprising an angle firing and a shunt resistor for efficiency-maximization of the controller current as taught by Lumsden (col. 7, lines 1-13).

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Braeutigam in view of Lee and further in view of Waggoner et al.

Braeutigam in view of Lee discloses substantially the claimed invention, but does not disclose a controller with firmware. Waggoner teaches a heater resistor having a controller 80 comprising firmware. It would have been obvious to one having ordinary skill in the art to modify the invention of Braeutigam in view of Lee to include a controller comprising firmware in order to control various functions as taught by Waggoner (col. 2, lines 63-67).

Response to Arguments

6. Applicant's arguments with respect to claims 6-11, 13, 19-23 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

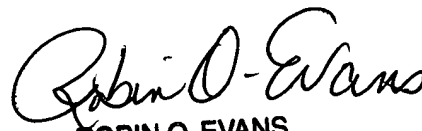
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Leonid M Fastovsky
Examiner
Art Unit 3742

Imf

6/21/06


ROBIN O. EVANS
PRIMARY EXAMINER
6/23/06